# Interannual variability of biological production in the Canary Current: a remote sensing and modeling perspective

Mary-Elena Carr

Jet Propulsion Laboratory, MS 300-323, 4800 Oak Grove Dr., California Institute of Technology; Pasadena, California, 91109-8099; mec@pacific.jpl.nasa.gov; Phone: (818) 354-5097; Fax: (818) 393-6720

The present constellation of sea-viewing satellites provides an unprecedented opportunity to understand biological-physical interactions. Here we use measurements of wind speed, sea surface temperature, sea surface height, photosynthetically available radiation, and ocean color to address the interannual variability of physical forcing and biological response in the Canary Current. Changes in productivity in the Canary Current, an eastern boundary current, reflect wind forcing and the characteristics of the upwelled water in the coastal area, and advective supply due to filaments and atmospheric dust deposition further offshore. A previous study comparing ocean color-based primary production of eastern boundary currents found that potential production on an annual basis in the Canary Current (0.3 Gt C/y for 1997-1999) was, due to the large area in which chlorophyll concentration surpasses 1 mg Chl/m$^3$, second only to that in the Benguela Current. Interannual variability between 1998 and 1999 in the Canary Current was comparable to variability in the Humboldt Current, though less than in the California Current. SST was anomalously high in 1998 in the Canary Current with a clear negative impact on the spatial extent of high chlorophyll concentrations. The present study compares biological productivity estimated from ocean color and from a planktonic ecosystem model for the period 1996 to 2000 within the context of observations at other eastern boundary currents and in relation to environmental conditions measured from space-borne sensors.